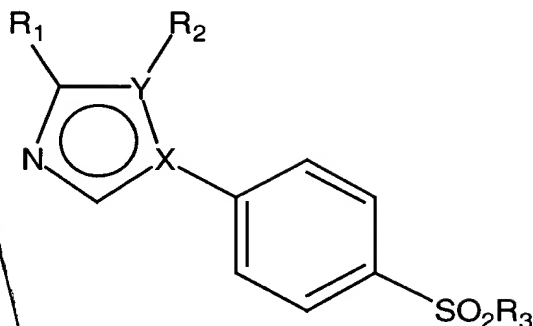


## CLAIMS

1.- A compound of general formula I:



wherein:

one of X or Y represents N and the other represents C;

R<sub>1</sub> represents hydrogen, methyl, halogen, cyano, nitro, -CHO, -COCH<sub>3</sub> or -COOR<sub>4</sub>;

10 R<sub>2</sub> represents aryl or heteroaryl optionally substituted with one or more groups independently selected from halogen, C<sub>1-8</sub> alkyl, C<sub>1-8</sub> haloalkyl, R<sub>4</sub>OC<sub>0-8</sub> alkyl, R<sub>4</sub>SC<sub>0-8</sub> alkyl, cyano, nitro, -NR<sub>4</sub>R<sub>6</sub>, -NR<sub>4</sub>SO<sub>2</sub>R<sub>5</sub>, -SOR<sub>5</sub>, -SO<sub>2</sub>R<sub>5</sub>, -SO<sub>2</sub>NR<sub>4</sub>R<sub>6</sub>, or -CONR<sub>4</sub>R<sub>6</sub>;

R<sub>3</sub> represents C<sub>1-8</sub> alkyl, C<sub>1-8</sub> haloalkyl or -NR<sub>4</sub>R<sub>6</sub>;

15 R<sub>4</sub> represents hydrogen, C<sub>1-8</sub> alkyl, or arylC<sub>0-8</sub> alkyl (where the aryl group can be optionally substituted with one or more groups selected from C<sub>1-8</sub> alkyl, halogen, C<sub>1-8</sub> haloalkyl, cyano, nitro, R<sub>7</sub>OC<sub>0-8</sub> alkyl, R<sub>7</sub>SC<sub>0-8</sub> alkyl, -NR<sub>7</sub>R<sub>8</sub>, -NR<sub>7</sub>COR<sub>5</sub>, -COR<sub>7</sub> or -COOR<sub>7</sub>);

R<sub>5</sub> represents C<sub>1-8</sub> alkyl or C<sub>1-8</sub> haloalkyl;

20 R<sub>6</sub> represents hydrogen, C<sub>1-8</sub> alkyl, arylC<sub>1-8</sub> alkyl (where the aryl group can be optionally substituted with one or more groups selected from C<sub>1-8</sub> alkyl, halogen, C<sub>1-8</sub> haloalkyl, cyano, nitro, R<sub>7</sub>OC<sub>0-8</sub> alkyl, R<sub>7</sub>SC<sub>0-8</sub> alkyl, -NR<sub>7</sub>R<sub>8</sub>, -NR<sub>7</sub>COR<sub>5</sub>, -COR<sub>7</sub> or -COOR<sub>7</sub>), -COR<sub>8</sub> or -COOR<sub>8</sub>;

R<sub>7</sub> represents hydrogen, C<sub>1-8</sub> alkyl or benzyl;

25 R<sub>8</sub> represents C<sub>1-8</sub> alkyl or C<sub>1-8</sub> haloalkyl;

aryl in the above definitions represents phenyl or naphthyl; and

heteroaryl in the above definitions represents pyridine, pyrazine, pyrimidine or pyridazine, which can be optionally fused to a benzene ring;

and the salts, solvates and prodrugs thereof.

2.- A compound according to claim 1 wherein R<sub>1</sub> represents halogen.

3.- A compound according to claim 2 wherein R<sub>1</sub> represents chloro.

4.- A compound according to claim 1 wherein R<sub>2</sub> represents phenyl or pyridine optionally substituted with one or more groups independently selected from halogen, C<sub>1-8</sub> alkyl, C<sub>1-8</sub> haloalkyl, R<sub>4</sub>OC<sub>0-8</sub> alkyl, R<sub>4</sub>SC<sub>0-8</sub> alkyl, cyano, nitro, -NR<sub>4</sub>R<sub>6</sub>, -NR<sub>4</sub>SO<sub>2</sub>R<sub>5</sub>, -SOR<sub>5</sub>, -SO<sub>2</sub>R<sub>5</sub>, -SO<sub>2</sub>NR<sub>4</sub>R<sub>6</sub>, or -CONR<sub>4</sub>R<sub>6</sub>.

5.- A compound according to claim 1 wherein R<sub>3</sub> represents methyl or -NH<sub>2</sub>.

6.- A compound according to claim 1 wherein X represents N.

10 7.- A compound according to claim 5 wherein R<sub>1</sub> represents halogen.

8.- A compound according to claim 5 wherein R<sub>1</sub> represents chloro.

9.- A compound according to claim 7 or 8 wherein X represents N.

10.- A compound according to claim 9 wherein R<sub>2</sub> represents phenyl or pyridine optionally substituted with one or more groups independently selected from halogen, C<sub>1-8</sub> alkyl, C<sub>1-8</sub> haloalkyl, R<sub>4</sub>OC<sub>0-8</sub> alkyl, R<sub>4</sub>SC<sub>0-8</sub> alkyl, cyano, nitro, -NR<sub>4</sub>R<sub>6</sub>, -NR<sub>4</sub>SO<sub>2</sub>R<sub>5</sub>, -SOR<sub>5</sub>, -SO<sub>2</sub>R<sub>5</sub>, -SO<sub>2</sub>NR<sub>4</sub>R<sub>6</sub>, or -CONR<sub>4</sub>R<sub>6</sub>.

11.- A compound according to claim 1 selected from:

5-(4-fluorophenyl)-1-(4-methylsulfonylphenyl)imidazole;

5-(4-methylphenyl)-1-(4-methylsulfonylphenyl)imidazole;

20 5-(2,4-difluorophenyl)-1-(4-methylsulfonylphenyl)imidazole;

1-(4-methylsulfonylphenyl)-5-phenylimidazole;

5-(3,4-dichlorophenyl)-1-(4-methylsulfonylphenyl)imidazole;

5-(4-methoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;

5-(3-fluoro-4-methoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;

25 5-(3-fluorophenyl)-1-(4-methylsulfonylphenyl)imidazole;

5-(3-fluoro-4-methylphenyl)-1-(4-methylsulfonylphenyl)imidazole;

5-(2-fluorophenyl)-1-(4-methylsulfonylphenyl)imidazole;

1-(4-methylsulfonylphenyl)-5-(4-trifluoromethoxyphenyl)imidazole;

5-(6-methyl-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;

30 5-(2-fluoro-4-methoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;

5-(3-chloro-4-methylphenyl)-1-(4-methylsulfonylphenyl)imidazole;

5-(3-methoxy-4-methylphenyl)-1-(4-methylsulfonylphenyl)imidazole;

5-(4-chlorophenyl)-1-(4-methylsulfonylphenyl)imidazole;

5-(6-chloro-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;

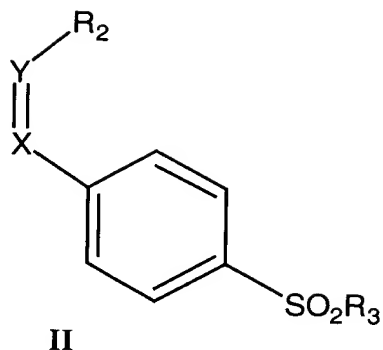
- 5-(2,6-dichloro-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
5-(2-chloro-6-methoxy-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
5-(5,6-dichloro-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
1-(4-methylsulfonylphenyl)-5-(4-propoxyphenyl)imidazole;  
5-(3,5-diethoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
5-(4-ethoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
1-(4-methylsulfonylphenyl)-5-(4-nitrophenyl)imidazole;  
5-(4-methylsulfonylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
5-(4-ethylsulfonylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
5-(4-dimethylaminophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
1-(4-fluorophenyl)-5-(4-methylsulfonylphenyl)imidazole;  
5-(4-fluorophenyl)-4-methyl-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(4-fluorophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(4-methylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(2,4-difluorophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-1-(4-methylsulfonylphenyl)-5-phenylimidazole;  
4-chloro-5-(3,4-dichlorophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(4-methoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(3-fluoro-4-methoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(3-fluorophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(3-fluoro-4-methylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(2-fluorophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-1-(4-methylsulfonylphenyl)-5-(4-trifluoromethoxyphenyl)imidazole;  
4-chloro-5-(6-methyl-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(2-fluoro-4-methoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(3-chloro-4-methylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(3-methoxy-4-methylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(4-chlorophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(6-chloro-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(2,6-dichloro-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(2-chloro-6-methoxy-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-5-(5,6-dichloro-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
4-chloro-1-(4-methylsulfonylphenyl)-5-(4-propoxyphenyl)imidazole;  
4-chloro-5-(3,5-diethoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;

- 4-chloro-5-(4-ethoxyphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
 4-chloro-1-(4-methylsulfonylphenyl)-5-(4-nitrophenyl)imidazole;  
 4-chloro-5-(4-methylsulfonylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
 4-chloro-5-(4-ethylsulfonylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
 5 4-chloro-5-(6-ethoxy-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
 4-bromo-5-(4-fluorophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
 1-(4-fluorophenyl)-2-methyl-5-(4-methylsulfonylphenyl)imidazole;  
 2-chloro-1-(4-fluorophenyl)-5-(4-methylsulfonylphenyl)imidazole;  
 1-(4-fluorophenyl)-5-(4-methylsulfonylphenyl)imidazol-2-carboxaldehyde;  
 10 methyl 1-(4-fluorophenyl)-5-(4-methylsulfonylphenyl)imidazol-2-carboxylate;  
 2-bromo-1-(4-fluorophenyl)-5-(4-methylsulfonylphenyl)imidazole;  
 1-(4-fluorophenyl)-5-(4-methylsulfonylphenyl)imidazol-2-carbonitrile;  
 2-chloro-5-(4-methylsulfonylphenyl)-1-phenylimidazole;  
 2-chloro-1-(4-methylphenyl)-5-(4-methylsulfonylphenyl)imidazole;  
 15 4-[4-chloro-5-(4-fluorophenyl)imidazol-1-yl]benzenesulfonamide;  
 4-(4-chloro-5-phenylimidazol-1-yl)benzenesulfonamide;  
 4-[4-chloro-5-(3,4-dichlorophenyl)imidazol-1-yl]benzenesulfonamide;  
 4-[4-chloro-5-(4-methylphenyl)imidazol-1-yl]benzenesulfonamide;  
 4-[4-chloro-5-(4-ethoxyphenyl)imidazol-1-yl]benzenesulfonamide;  
 20 4-[4-chloro-5-(3-fluoro-4-methoxyphenyl)imidazol-1-yl]benzenesulfonamide;  
 4-[4-chloro-5-(6-chloro-3-pyridyl)imidazol-1-yl]benzenesulfonamide;  
 4-[5-(4-fluorophenyl)imidazol-1-yl]benzenesulfonamide;  
 5-(4-aminophenyl)-4-chloro-1-(4-methylsulfonylphenyl)imidazole;  
 5-(6-ethoxy-3-pyridyl)-1-(4-methylsulfonylphenyl)imidazole;  
 25 4-chloro-5-(4-dimethylaminophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
 5-(3-chloro-4-dimethylaminophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
 4-chloro-5-(3-chloro-4-dimethylaminophenyl)-1-(4-methylsulfonylphenyl)imidazole;  
 5-(4-acetylaminophenyl)-4-chloro-1-(4-methylsulfonylphenyl)imidazole;  
 5-(4-ethylsulfonylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
 30 5-(4-ethylsulfonylphenyl)-1-(4-methylsulfonylphenyl)imidazole;  
 or a salt, solvate or prodrug thereof.

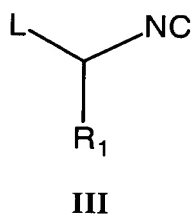
12.- A process for preparing a compound of formula I according to claim 1 which comprises:

(a) when in a compound of formula I  $R_1$  represents hydrogen or methyl, reacting

an imine of formula II

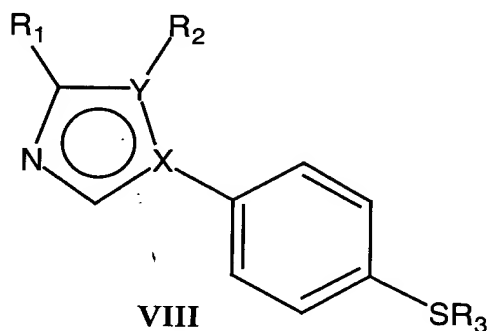


5 wherein X, Y, R<sub>2</sub> and R<sub>3</sub> are as defined in claim 1, with an isocyanide of formula III



wherein R<sub>1</sub> represents hydrogen or methyl and L represents a good leaving group;  
or

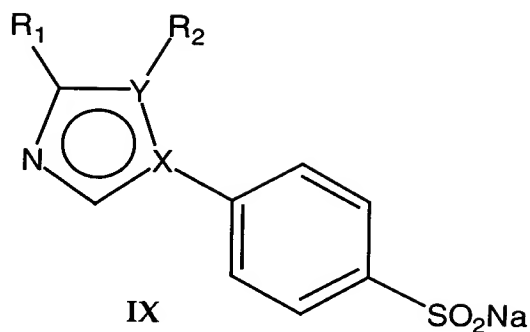
10 (b) when in a compound of formula I R<sub>3</sub> represents C<sub>1-8</sub> alkyl or C<sub>1-8</sub> haloalkyl, oxidizing a thioether of formula VIII,



15 wherein R<sub>3</sub> represents C<sub>1-8</sub> alkyl or C<sub>1-8</sub> haloalkyl and X, Y, R<sub>1</sub> and R<sub>2</sub> are as defined in claim 1, with a suitable oxidizing agent; or

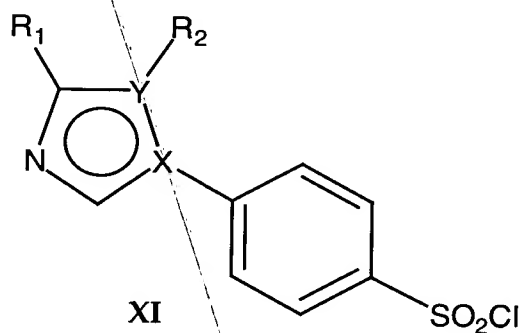
(c) when in a compound of formula I R<sub>3</sub> represents -NH<sub>2</sub>, reacting a compound of

formula IX



wherein X, Y, R<sub>1</sub> and R<sub>2</sub> are as defined in claim 1, with hydroxylamine-O-sulfonic acid; or

(d) when in a compound of formula I R<sub>3</sub> represents -NR<sub>4</sub>R<sub>6</sub>, reacting a compound of formula XI



wherein X, Y, R<sub>1</sub> and R<sub>2</sub> are as defined in claim 1, with an amine of formula HNR<sub>4</sub>R<sub>6</sub>; or

(e) when in a compound of formula I R<sub>1</sub> represents halogen and X represents N, reacting a compound of formula I wherein R<sub>1</sub> represents hydrogen with a suitable halogenating agent;

(f) when in a compound of formula I R<sub>1</sub> represents halogen and Y represents N, reacting a compound of formula I wherein R<sub>1</sub> represents hydrogen with a strong base and a suitable halogenating agent;

(g) converting, in one or a plurality of steps, a compound of formula I into another compound of formula I; and

(h) if desired, after the above steps, reacting a compound of formula I with an acid

sub  
as  
conc

to give the corresponding addition salt.

13.- A pharmaceutical composition which comprises an effective amount of a compound of formula I according to claim 1 or a pharmaceutically acceptable salt, solvate or prodrug thereof in admixture with one or more pharmaceutically acceptable excipients.

14.- Use of a compound of formula I according to claim 1 or a pharmaceutically acceptable salt, solvate or prodrug thereof for the manufacture of a medicament for the treatment or prevention of diseases mediated by cyclooxygenase.

15.- Use of a compound of formula I according to claim 1 or a pharmaceutically acceptable salt, solvate or prodrug thereof for the manufacture of a medicament for the treatment or prevention of diseases mediated by cyclooxygenase-2.

16.- Use of a compound of formula I according to claim 1 or a pharmaceutically acceptable salt, solvate or prodrug thereof for the manufacture of a medicament for the treatment of inflammation, pain and/or fever.

17.- Use of a compound of formula I according to claim 1 or a pharmaceutically acceptable salt, solvate or prodrug thereof for the manufacture of a medicament for inhibiting prostanoid-induced smooth muscle contraction.

18.- Use of a compound of formula I according to claim 1 or a pharmaceutically acceptable salt, solvate or prodrug thereof for the manufacture of a medicament for the treatment or prevention of dysmenorrhea, preterm labour, asthma and bronchitis.

19.- Use of a compound of formula I according to claim 1 or a pharmaceutically acceptable salt, solvate or prodrug thereof for the manufacture of a medicament for the treatment or prevention of cancer.

20.- Use according to claim 19 wherein the cancer is a gastrointestinal cancer.

21.- Use according to claim 20 wherein the gastrointestinal cancer is colon cancer.

22.- Use of a compound of formula I according to claim 1 or a pharmaceutically acceptable salt, solvate or prodrug thereof for the manufacture of a medicament for the treatment or prevention of cerebral infarction, epilepsy, and neurodegenerative diseases such as Alzheimer's disease and dementia.

add  
a4